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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/864,918	05/24/2001	Charles Carpenter	7631.89	1700

7590 06/25/2004

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EXAMINER	
KIM, PAUL D	

ART UNIT	PAPER NUMBER
3729	

DATE MAILED: 06/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/864,918	CARPENTER, CHARLES	
	Examiner	Art Unit	
	Paul D Kim	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,6,7,11-13,15 and 19-23* is/are pending in the application.

4a) Of the above claim(s) *21-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,6,7,11-13,15,19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is a response to the restriction requirement filed on 4/26/2004.

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/5/2004 has been entered.

Election/Restrictions

3. Applicant's election without traverse of Species A, claims 1, 2, 6, 7, 11-13, 15, 19 and 20, in the reply filed on 4/26/04 is acknowledged.

4. Claims 21-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 4/26/04.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 6, 7, 12, 13, 15, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yatsuda et al. (US PAT. 6,321,444) in view of Chung (US PAT. 6,428,650).

Yatsuda et al. teach a process of making a SAW device comprising steps of: forming a material (12) having a first and second surfaces and a cavity (12e) from the first surface as shown in Fig. 1; forming a recess from the first surface to receive a lid (12f) within the recess; providing at least two conductive paths (12i) from the cavity to the one of the first and second surfaces as shown in Fig. 2 and 3; inserting and attaching a SAW die (10) in a flip-chip mounting in to the cavity, the SAW die having conductive means (see Fig. 2) electrically connecting the at least two conductive paths (see Fig. 3) within the corresponding cavity; and solder sealing the lid in the recess over the inserted SAW die as shown in Fig. 1 (see also col. 5, line 5 to 7,line 18). Yatsuda et al. also teach that the lid is sealed with the solder capable of hermetically sealing the SAW die within the cavity as shown in Fig. 10.

As per claims 6 and 7 the solder (12g) is inserted between the lid and the recess as shown in Fig. 1.

As per claim 15 Yatsuda et al. teach that the solder is cured by heating or pressure. It appears to be that heating is not required when the pressure is applied to cure the solder. Therefore, it can be at the ambient temperature when the pressure is applied to cure the solder (col. 1, lines 62-66).

As per claim 20 the recess has a larger diameter than the cavity in order to form an area of overlap and the lid is sealed in each recess the area of the overlap as shown in Fig. 1.

However, Yatsuda et al. do not teach a plurality of cavities extending into the array from the first surface and separating the array into individual SAW devices. Yatsuda et al. only teach a fabricating a single SAW device. Chung teaches a process of a plurality of optical devices including a process of providing each lid over each inserted optical device as shown in Fig. 4 and separating the wafer (132) into individual optical device as shown in Fig. 7. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify a process of fabricating a SAW device of Yatsuda et al. by providing a wafer and separating the wafer individual optical device as taught by Chung for the purpose of optimizing production of SAW devices to reduce a production cost and time.

Also, Yatsuda et al. do not teach a metal lid. Chung teaches a metallic lid used in order to provide electrostatic and/or electromagnetic shielding of the electronic component. Therefore, it would also have been obvious at the time the invention was made to a person having ordinary skill in the art to modify a lid of Yatsuda et al. by a metal lid as taught by Chung in order to provide electrostatic and/or electromagnetic shielding of the electronic component.

As per claims 12 and 13 Yatsuda et al. teach that the material is made of non-conductive material such as a piezoelectric substrate, e.g. quartz crystal (col. 1, lines 32-40).

7. Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimoto et al. in view of Chung, further in view of Yoshihara et al. (US PAT. 5,824,177).

Yoshimoto et al. in view of Chung, teach all of the limitations as set forth above except a process of forming a tape means over the lid and substrate. Yoshihara et al. teach a method for making a semiconductor device including a process of forming an adhesive layer (6) to cover a lid (1) prior to a cutting process to prevent movement of the structure during the cutting process as shown in Fig. 3E (col. 4, lines 57-64). Therefore, it would also have been obvious at the time the invention was made to a person having ordinary skill in the art to modify facilitating a process of making a packaged piezoelectric oscillator of Yoshimoto et al. in view of Chung, by forming an adhesive layer to cover a lid as taught by Yoshihara et al. for the purpose of preventing the movement of the composite structure during the cutting process.

As per claim 11 Yoshihara et al. also teach a process of placing the adhesive layer on the first surface, separating from the second surface while maintaining continuity of the adhesive layer across the first surface and removing the individual components (1) after the cutting process from the adhesive layer (6) as shown in Fig. 3E-4E.

Response to Arguments

8. Applicant's arguments filed 3/5/2004 have been fully considered but they are not persuasive. Applicant argues that Chung is inherently non-hermetic and

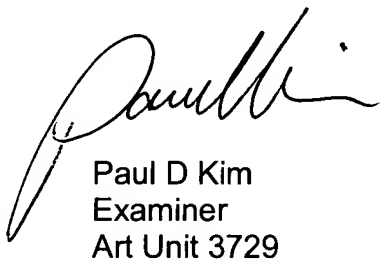
would allow certain gases especially water vapor. Examiner traverses the argument that the sealants of adhesive used by Chung is capable of hermetical sealing the SAW device for resisting to the passage of moisture and degradation of adhesive even under high temperature condition as disclosed in col. 5, lines 11-28. Chung also teaches a metallic lid used in order to provide electrostatic and/or electromagnetic shielding of the electronic component as disclosed in col. 5, lines 31-38. Applicant also argues that Yoshihara et al. do not teach the claimed invention such as a plurality of cavities extending into the array from the first surface and hermetically sealed SAW devices. Even though Yoshihara et al. do not teach the plurality of cavities extending into the array from the first surface, Chung teaches a process of a plurality of optical devices including a process of providing each lid over each inserted optical device as shown in Fig. 4 in order to optimize production of SAW devices to reduce a production cost and time. Also, even though Yoshihara et al. do not disclose whether the sealing the lid is hermetic or not, Yatsuda et al. show in Fig. 10 that the lid is sealed with the solder capable of hermetically sealed the SAW die within the cavity.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul D Kim whose telephone number is 703-308-8356. The examiner can normally be reached on Tuesday-Friday between 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Paul D Kim
Examiner
Art Unit 3729